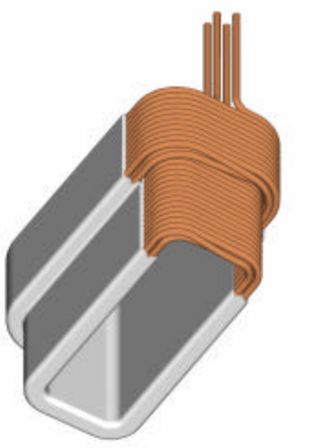
Responsibilities

1. Monitor and evaluate performance of accelerator subsystems
   a. septum magnets
   b. conventional magnets
   c. diagnostics devices
2. Maintenance and upgrades
   a. Maintain up to date spare parts inventory
   b. Maintenance/installation procedures
   c. Update/revise as built drawings
3. Coordinate fabrication, assembly and installation of mechanical components
   a. Canted undulator magnets
   b. Septum magnets
   c. XBPM and XBPM translation stage spares

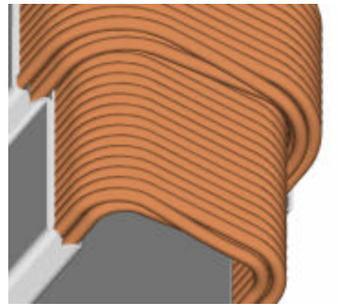
Current Duties

1. Overseeing assembly of the canted undulator magnets.
2. Study on radiation damage to magnet water cooling hoses.
3. Monitoring conventional magnet water flows and coil temperatures.
4. Building septum magnets including spares and updating septum magnet spare list.
5. Building XBPM spares, updating drawings to as built, and writing XBPM assembly procedure.
6. Monitoring scraper flange temperatures and installing scraper flange cooling jackets.
7. Overseeing installation of XBPM translation stages including writing an XBPM translation stages changing procedure.
8. Implementing acoustic monitoring of septum magnets to predict magnet problems before they shut down the ring.

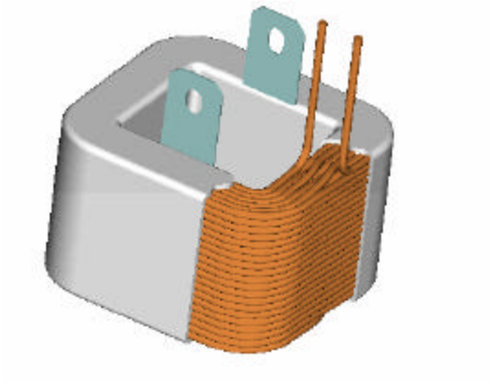
Magnet Coils



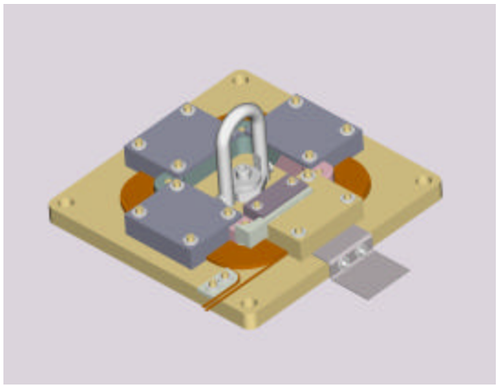
Canted Undulator
Corrector Coil



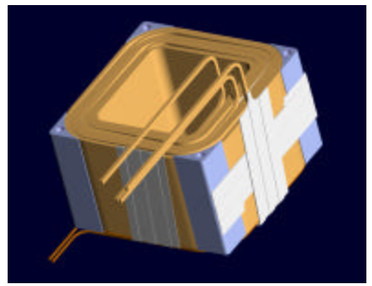
Canted Undulator
Corrector Coil



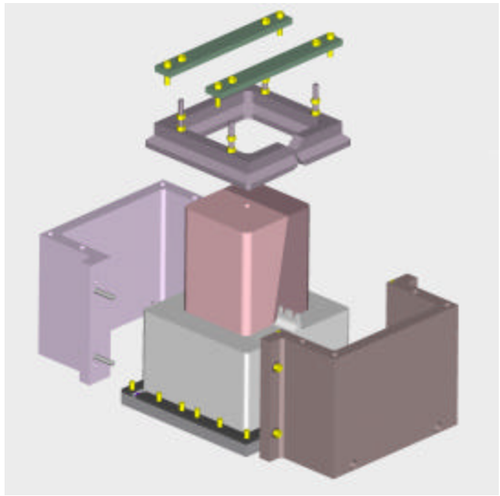
Canted Undulator Dipole Coil



Chicane Trim Coil Winding Fixture



Chicane Coil Assembly 3D



Chicane Coil Potting Fixture
Exploded View

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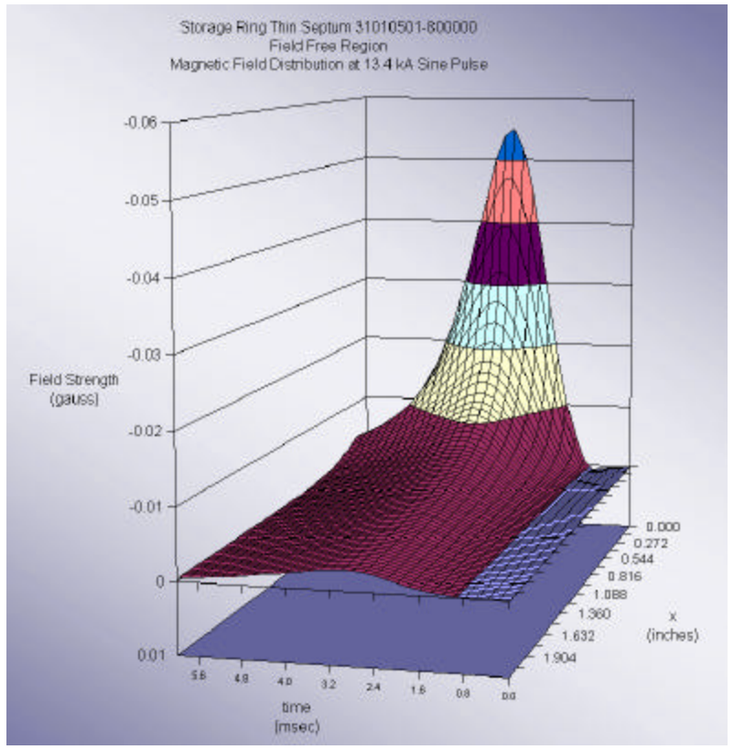
Vector Fields Electromagnetic Analysis



Storage Ring Thin Septum Field Free Region

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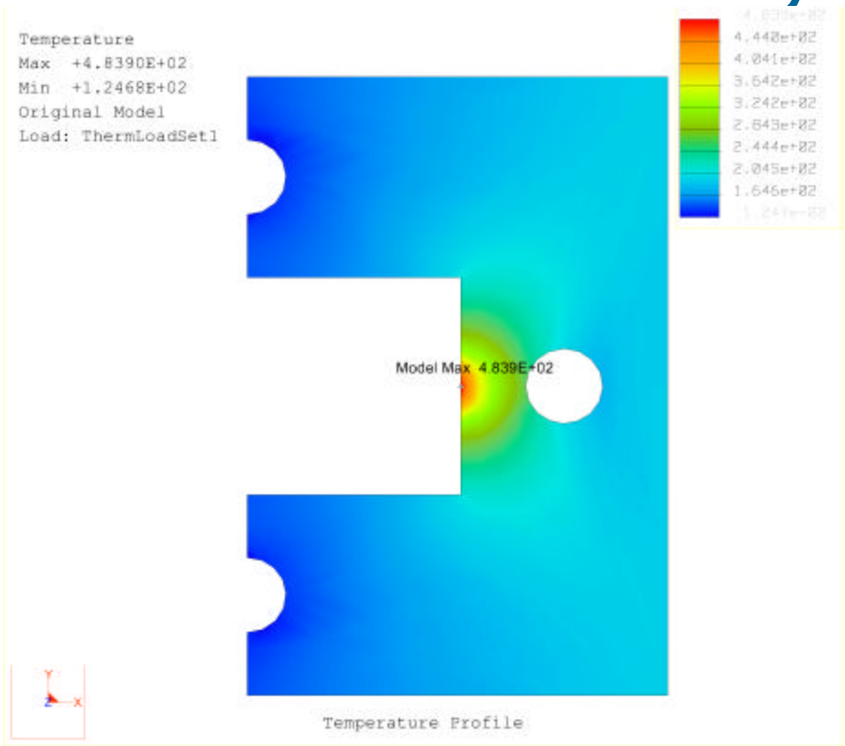
Unicat Absorber Analysis



Pro/Mechanica Results

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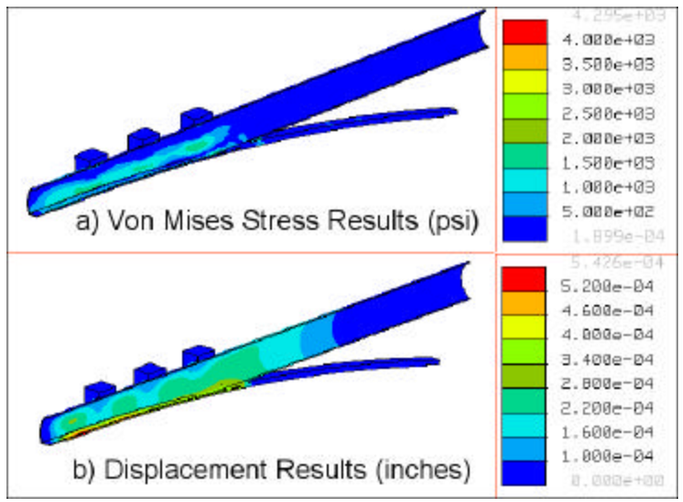
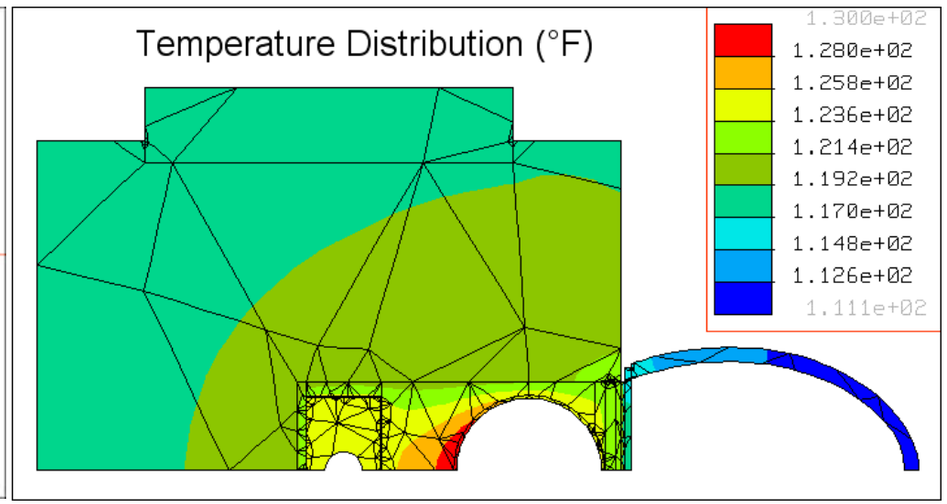
Booster Injection Air Septum





3 Yoke Analysis

Thermal Analysis

These analyses are published in the PAC 2001 paper “New Synchrotron Injection Septum Magnet at the APS”.

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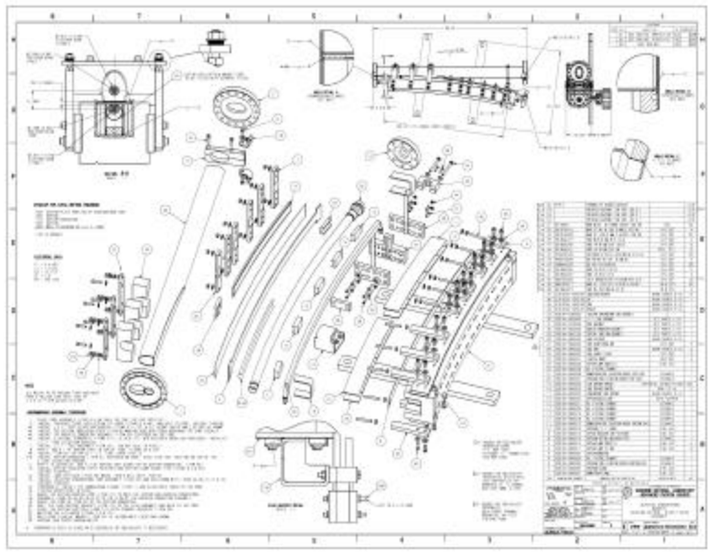
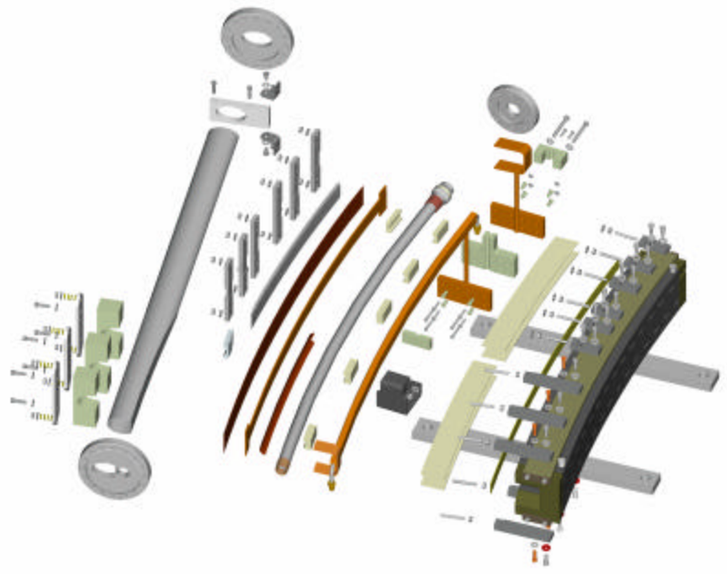
Booster Injection Air Septum



Assembly Drawing



Exploded View

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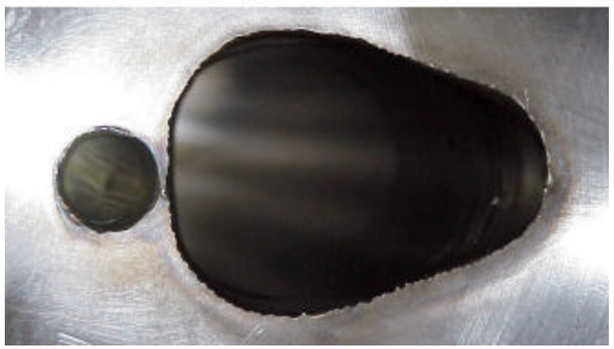
Storage Ring Septum Modification

After



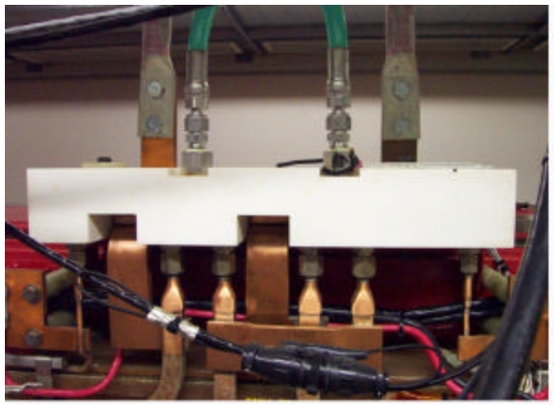
Before

This weld procedure and other septum magnet building techniques are discussed in MEDSI 2002 paper “Fabrication Techniques for Septum Magnets at the APS”.

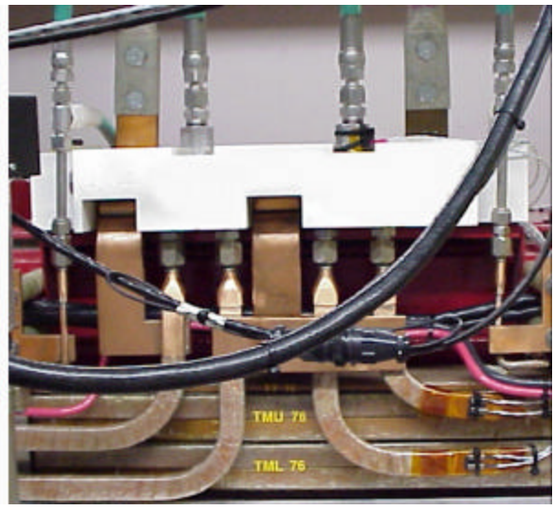
Picture of weld before and after modification

Storage Ring Dipole Water Cooling

Modify manifolds to stop copper deposits that started to develop when using trim coils for the Decker distortion.



Before



After

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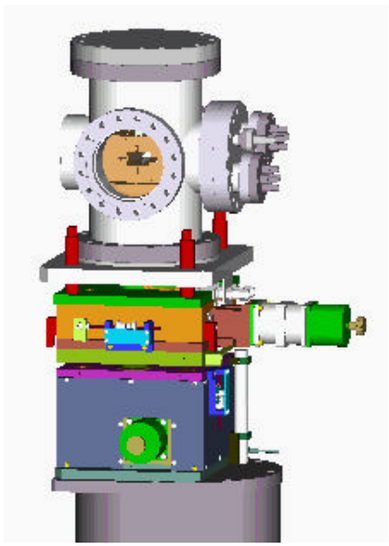
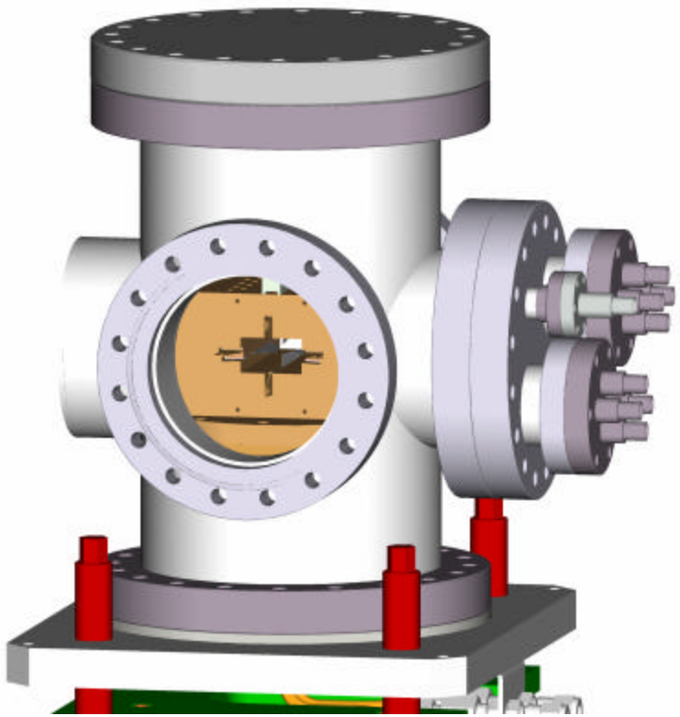
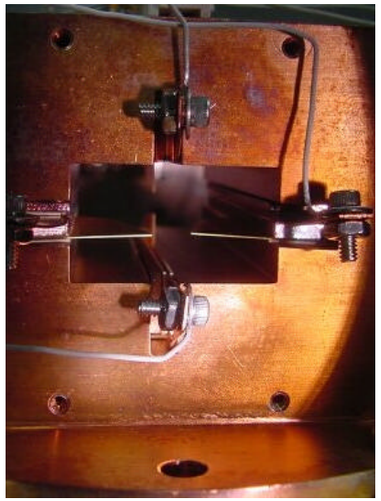
X-ray Beam Position Monitors







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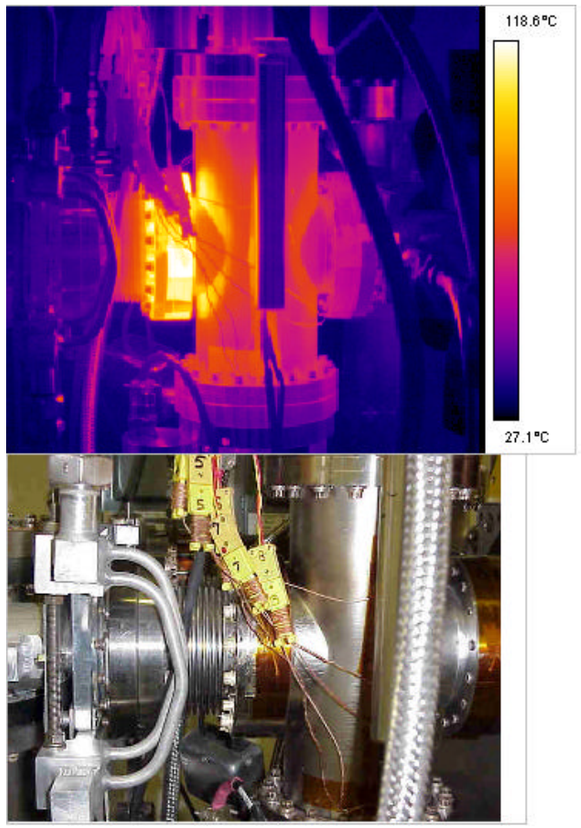
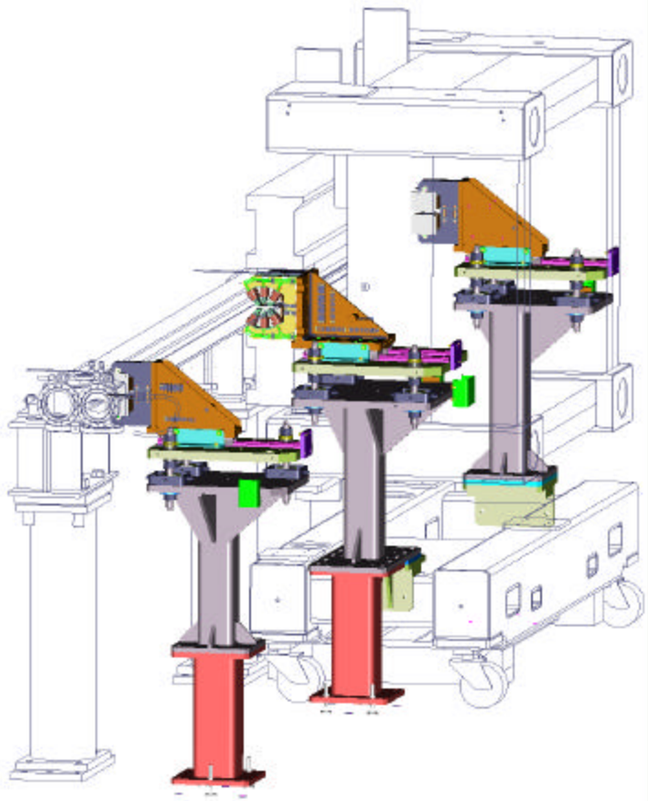
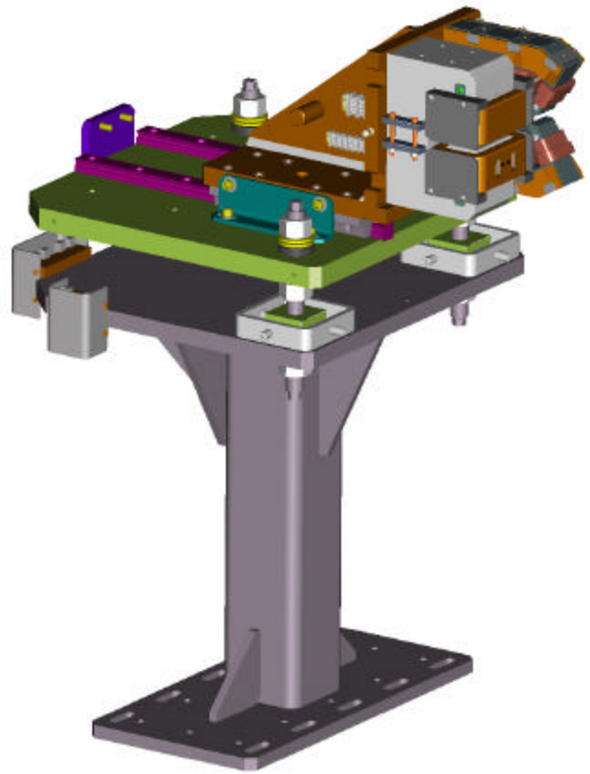
Scraper Overheating



1. Caused by image current induced heating generated from the beam passing through the irregularly shaped cross section of the scrapers.
2. Temporary fix will be a water cooled jacket on the flange.
3. Permanent fix will be redesign the scrapers.
4. These results are shown on the ASD web site.

Canted Undulator Magnets





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THE END